

Claims:

1. A method of melting pieces of solid metal in a bath of molten metal, the method comprising the steps of:
 - 5 introducing the solid metal into a melting apparatus which is in fluid communication with the molten metal bath whilst maintaining the upper surface of the bath externally of the melting apparatus substantially quiescent; and
 - 10 inducing flow of molten metal through the melting apparatus and over solid metal contained therein whilst maintaining the upper surface of the bath, both internally and externally of the melting apparatus, substantially quiescent.
- 15 2. A method as claimed in claim 1 wherein the flow of molten metal is induced by an impellor mounted within the melting apparatus.
3. A method as claimed in claim 1 or claim 2, the method further comprising the step of varying the rate
 - 20 of flow of molten metal.
4. A method as claimed in any one of the preceding claims wherein the flow of molten metal is substantially vertically through the melting apparatus.
5. A method as claimed in any one of the preceding claims wherein the flow of molten metal is
 - 25 upwardly through the melting apparatus.
6. A method of melting pieces of solid metal in a bath of molten metal, the method being substantially as herein described with reference to the accompanying
 - 30 drawings.

7. A melting apparatus for melting pieces of solid metal in a bath of molten metal, the melting apparatus comprising:

5 a device having a lower portion, an upper portion, and a body portion extending therebetween which is formed with a plurality of apertures therein, the device arranged, in use, with the lower portion and the plurality of apertures in the body portion positioned within the bath of molten metal and the upper portion
10 positioned above the upper surface of the molten metal bath;

introduction means for introducing the solid metal into the device through the upper portion of the device;

15 flow inducing means for inducing flow of molten metal through the device; and

flow straightening means for encouraging axial flow of molten metal through the device.

8. A melting apparatus as claimed in claim 7
20 wherein the flow inducing means comprises an impellor.

9. A melting apparatus as claimed in claim 7 or claim 8 wherein the flow straightening means comprises a plurality of baffles arranged in at least one grid.

10. A melting apparatus as claimed in claim 9
25 wherein a first grid is located above the flow inducing means and a second grid is located below the flow inducing means.

11. A melting apparatus as claimed in any one of claims 7 to 10 further comprising flow rate varying means
30 for varying the flow rate of molten metal through the device.

12. A melting apparatus as claimed in claim 11 wherein the flow rate varying means comprises a variable speed drive for the flow inducing means.

13. A melting apparatus as claimed in any one of
5 claims 8-12, further comprising support means for supporting pieces of solid metal in the device during melting.

14. A melting apparatus as claimed in any one of
10 claims 8-13, further comprising flow diversion means for directing molten metal exiting the body through the apertures away from the upper surface of the molten metal bath.

15. A melting apparatus as claimed in claim 14 wherein the flow diversion means comprises a collar or
15 skirt which projects from the body from a level above the apertures.

16. A melting apparatus as claimed in claim 15 wherein the collar/skirt surrounds the device and projects outwardly and downwardly from the body.

20 17. A melting apparatus for melting pieces of solid metal in a bath of molten metal, the apparatus being substantially as herein described with reference to the accompanying drawings.